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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,338	07/22/2003	Clayton M. Grondahl	GRON-0002	6985
23550 7590 12/31/2007 HOFFMAN WARNICK & D'ALESSANDRO, LLC 75 STATE STREET 14TH FLOOR ALBANY, NY 12207			EXAMINER REESE, DAVID C	
			ART UNIT 3677	PAPER NUMBER
			NOTIFICATION DATE 12/31/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTOCommunications@hwdpatents.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/624,338	GRONDAHL, CLAYTON M.	
	<b>Examiner</b>	<b>Art Unit</b>	
	David C. Reese	3677	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-9,11-13,15-21 and 23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,6-9,11-13, 15-21 and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

THIS FINAL ACTION IS RESPONSIVE TO THE AMENDMENT FILED 10/12/2007.

- Claims 5, 10, 14, and 22 are canceled.
- Claim 25 is withdrawn.
- Claims 1, 9, 11, 19, 24, and 26 were amended.
- Claims 1-4, 6-9, 11-13, 15-21, and 23 are pending.

#### *Claim Objections*

[1] Claim(s) 11 were previously objected to because of informalities. Applicant has successfully addressed these issues in the amendment filed on 10/12/2007. Accordingly, the objection(s) to the claim(s) 11 have been withdrawn.

#### *Claim Rejections - 35 USC § 103*

[2] The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[3] Claims 1, 3-4, 8-9, 11-13, 15-17, 19, 21, and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gail et al ("Gail", U.S. Patent No. 5,975,535) in view of Webster et al ("Webster", U.S. Patent No. 6,220,602).

Although the invention is not identically disclosed or described as set forth 35 U.S.C. 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to

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a designer having ordinary skill in the art to which said subject matter pertains, the invention is not patentable.

With respect to claims 1, 9, 19, and 24, Gail discloses of a seal assembly (see figure below) comprising:

a brush seal (1) with a plurality of staggered seal members, each brush seal member including:

a free portion (2) [adapted to be]\* angled relative to a longitudinal axis and longitudinally angled relative to all radial axes of a component (4) to be sealed against; and

a fixed portion (3) that is angled relative to free portion (2) and [adapted to be]\* one of substantially parallel to and substantially perpendicular to the longitudinal axis of the component (4) to be sealed against; and

a support (5) coupled to a low pressure side of the seal for supporting the free portion (2), the support (5) having a support portion facing a high pressure side of the seal,

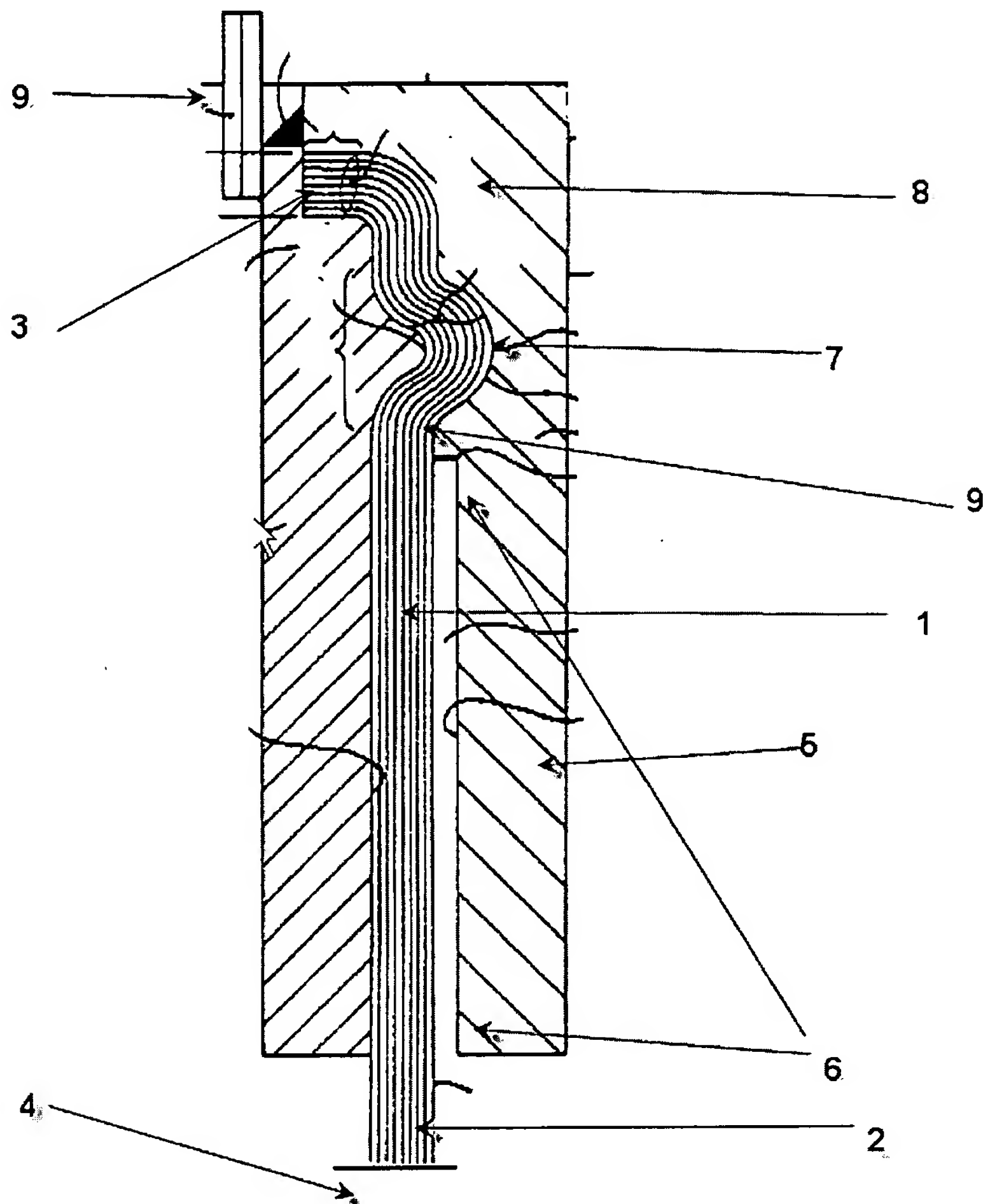
wherein the free portion (2) contacts a distal end (6) in an pressurized operative state (\*) and is out of contact with the distal end (6) in an unpressurized inoperative state, the fixed portion (3) of the seal is angled relative to the free portion (2) in both the operative and inoperative states, and the free portion (2) is adapted to be closer to the component (4) to be sealed against during the pressurized operative state than in the unpressurized inoperative state (\*).

\*Examiner's note: the above statements utilizing "adapted to" language do not positively bring into the claim the component. That is, in the instant case, the prior art must only be capable of performing said intended use or functional language to be properly applied to the

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claim. And in the instant case, the prior art of Gail does indeed possess a free portion that “is adapted to be” angled relative to a component. The component, since in the instant case is not positively claimed, does not have to be the one as disclosed by Gail. For example, the component itself may be angled, wherein the free portion is thus considered angled relative to the longitudinal axis of said angled component. The same reasoning can be applied to that of the last paragraph of the instant claims. Once again, the component has not positively been brought into the claim, so the last paragraph, containing mainly functional language only requires that the free portion and angled portion have their respective relationship with that of “a component”; not necessarily the component as disclosed by Gail. That is, the component may be angled upwards from left to right; and during a pressurized state (with air flow from the left) the free portion would become closer to said component than during the unpressurized inoperative state. It has been held that the recitation that an element is “adapted to” perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138.

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Gail discloses the seal to be brush seal, not a leaf seal as claimed.

Webster teaches a seal arrangement where either a brush seal or leaf seal may be used (column 7, lines 44, 45), thereby establishing the seals as equivalent. It would have been obvious to one having ordinary skill in the art at the time of the invention to use either a brush seal or leaf seal, as Webster teaches these seals to be equivalent and interchangeable.

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Re: Claim 3, wherein the support portion (5) includes a curved surface (7) extending from a proximate end (8) of the support portion (5) to the distal end (6), and the free portion (2) extends tangentially (9) from the curved surface in the operative state.

Re: Claim 4, wherein the proximate end (8) is coupled to a mount portion (9) of the support that mounts the support (5) to a stationary component.

Re: Claim 8, wherein the fixed portion (3) is positioned substantially perpendicular to a longitudinal axis of a component (4) to be sealed, and the free portion (2) is angled out-of-plane relative to the fixed portion (3).

Re: Claim 11, wherein the distal end (6) of the support (5) portion is thinner than a proximate end (8) of the support portion, and the proximate end (8) is in contact with the free portion in the inoperative state (at 9).

Re: Claim 12, wherein the support portion (5) includes a curved surface (7) extending from a proximate end (8) to the distal end (6).

Re: Claim 13, wherein the proximate end (8) is coupled to a mount portion (9) of the support that mounts the support (5) to a stationary component.

Re: Claim 15, further comprising a holder for mounting the seal assembly to a stationary component, wherein the holder includes a projection for protecting the free portion (see area below and around 8 in the figure above).

Re: Claims 16 and 17, the combination of Gail and Webster teaches the fixed portion (6) to be provided by an arcuate member in each leaf seal member. Examiner notes that because the seal extends around a rotary shaft, it is essentially circular, which will include arced portions.



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Gail shows the free end portion to be circumferentially parallel to a surface of the rotatable component.

Re: Claim 21, wherein the support portion (5) includes a curved surface (7) extending from a proximate end (8) to the distal end (6).

Re: Claim 23, wherein the fixed portion (3) is positioned substantially perpendicular to a longitudinal axis of a component (4) to be sealed, and the free portion (2) is angled out-of-plane relative to the fixed portion (3).

[4] Claims 2, 18, 20, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gail in view of Webster as applied to claims above, and further in view of Halowach et al (“Halowach”, U.S. Patent No. 4,813,608). Gail and Webster fail to disclose the leaf seal layers to be made from different materials, where a first material addresses a high pressure side of the seal and a second material addresses a low pressure side of the seal, where the material has a lower coefficient of thermal expansion than the second material.

Halowach discloses a leaf seal assembly (40) comprising two layers of different material with different coefficients of thermal expansion. The two layers are bonded together, such that the different rate of expansion between the two layers causes the seal to bend in a preferred direction, which results in the formation of a tight air seal between adjoining structures (column 2, lines 13-24). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Gail and Webster as taught by Halowach, such that the layers are made of materials with different coefficients of thermal expansion, so that the differing rates of expansion causes the seal to bend, forming a tight air seal between the structures. .



[5] Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gail in view of Webster as applied to claim 1 above, and further in view of Mackay et al ("Mackay", U.S. Patent No. 5,042,823). Gail and Webster fail to disclose the plurality of staggered leaf seal members (3, 4) to be provided by a single strip of material.

Mackay teaches a leaf seal arrangement (54) made from single strip of material. Manufacturing a multi-layered seal from a single strip of material lowers manufacturing costs because the seal can then be assembled in a simpler fashion, as opposed to cutting two different layers to length and connecting the layers together to form the seal. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify Gail and Webster as taught by Mackay, such that the seal is made from a single strip of material, in order to reduce manufacturing costs. Mackay further discloses the leaf seal members to be fixed by a weld.

### *Response to Arguments*

[6] Applicant's arguments filed 10/12/2007 regarding rejections under 35 U.S.C. 103 have been fully considered but they are not persuasive. With regard to the free portion being angled relative to a longitudinal axis and longitudinally angled relative to all radial axes of a component to be sealed against, to reiterate that described above, statements utilizing "adapted to" language do not positively bring into the claim the component. That is, in the instant case, the prior art must only be capable of performing said intended use or functional language to be properly applied to the claim. And in the instant case, the prior art of Gail does indeed possess a free portion that "is adapted to be" angled relative to a component. The component, since in the instant case is not positively claimed, does not have to be the one as disclosed by Gail. For example, the component itself may be angled, wherein the free portion is thus considered angled

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relative to the longitudinal axis of said angled component. Secondly, with respect to the relationship between the free and fixed portion with respect to "a component" the same reasoning may be applied, as once again, the component has not positively been brought into the claim, so the last paragraph, containing mainly functional language only requires that the free portion and angled portion have their respective relationship with that of "a component"; not necessarily the component as disclosed by Gail. That is, the component may be angled upwards from left to right; and during a pressurized state (with air flow from the left) the free portion would become closer to said component than during the unpressurized inoperative state. It has been held that the recitation that an element is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138.

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***Conclusion***

[7] **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

[8] Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Reese whose telephone number is (571) 272-7082. The examiner can normally be reached on 7:30 am-6:00 pm Monday-Thursday.

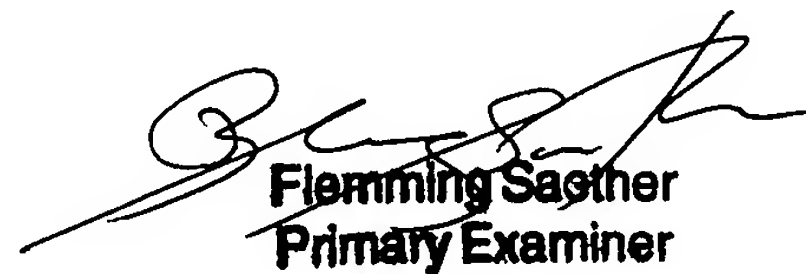
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Katherine Mitchell can be reached at (571) 272-7069. The fax number for the organization where this application or proceeding is assigned is the following: (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DCR



David Reese  
Assistant Examiner  
Art Unit 3677



Flemming Sæther  
Primary Examiner